On page 1, after line 4, insert the following heading:

--2. Description of the Prior Art--

On page 2, after line 26, insert the following:

--3. Summary of the Invention--

On page 2, replace the paragraphs starting on lines 27 and 31 with the following:

An object of the present invention is to provide an apparatus which permits safe data transfer with simple means along with fast and simple synchronization of transmitter and receiver. A further object is to provide a simple and reliable synchronization method.

The object of the invention is met by a transceiver for data signals that has the following features:

a transmitting section which conditions input data for transmission over a communication link containing a plurality of channels,

a receiving station which receives signals from one of the channels and processes them into output data,

a channel switching device connected to the transmitting section and the receiving section,

a channel hopping program part in which a plurality of predetermined channel hopping sequences are programmed, a predetermined channel hopping sequence being associated with the transceiver as an address,

a channel selecting device which controls the channel switching device in accordance with a predetermined channel hopping sequence, and

a clock device for operating the channel selecting device, the clock device being synchronized by a public time signal (radio clock) to synchronize channel hopping between a transmitting and a receiving transceiver with the aid of the public time signal.

On page 4, replace the paragraph beginning on line 8 with the following:

The receiver called by a transmitting device confirms the calling and the transmitting device synchronizes itself with the receiver. Since only said two devices work in synchronism in the channel hopping sequence specific to this connection and stay only in the particular channel for only a relatively short time, one obtains protection for the transferred data signals, on the one hand, and prevents a stronger signal from being able to terminate the connection, on the other hand.

On page 5, replace the paragraph beginning on line 22 with the following:

The invention furthermore provides a method for synchronizing transceiving operation between a transmitter and a receiver which are connected over a communication link with cyclically hopping channels, comprising the following steps:

the transmitter *(A)* calls a desired receiver *(B)*,

the same channel hopping sequence is adjusted in the transmitter *(A)* and the receiver *(B)*,

transmitter *(A)* and receiver *(B)* both receive a public time signal,

transmitter and receiver are synchronized by the time signal or a signal derived therefrom by the channel hopping cycle being started on a previously defined channel in synchronism with the time signal both in the transmitter and the receiver.

On page 6, before the first line insert the following heading:

--BRIEF DESCRIPTION OF THE DRAWINGS--;

On page 6, replace the paragraph beginning on line 1 with the following:

In the drawings, wherein like reference characters denote similar elements throughout the several views:

FIG. 1 is a block diagram of a transceiver with a device executed as an additional device for automatic and continuous hopping of transmission channels;

FIGS. 2a and 2b are timing diagrams showing the setup of a connection between two transceivers;

FIGS. 3a and 3b are flow charts showing the operation of a transmitter and receiver in accordance with the invention;

FIG. 4 is a functional block diagram of a channel selecting device; and

FIG. 5 is a block diagram of an embodiment of an additional part of a transceiver shown in FIG. 1 at the bottom right.

On page 6, after line 10 insert the following heading:

--DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS--

On page 6, replace the paragraph beginning on line 11 as follows:

As indicated in FIG. 1, the transceiver contains a radio data transmission device 2 known in the art which is equipped with an inventive additional part 1 for protecting the transfer of the data signals. The additional part 1 forms a data transfer device suitable for installation in any devices used for data transfer.

On page 6, replace the paragraph starting on line 19 as follows:

Departing from the representation in FIG. 1, additional part 1 may also be integrated in transceiver 2.

On page 6, replace the paragraph beginning on line 21 with the following:

A data signal source 4, for example an audio frequency part connected to a microphone, provides data signals to a signal conditioning circuit 6 via a channel switch 10. Signal conditioning circuit 6 modulates the data signals to condition them for radiation through an antenna 8. In customary transceivers, the channel switch 10 is formed as a manual selector switch for selecting one of the available channels. Reception of data is effected similarly to transmission of data. The receive signals coming through the antenna 8 are demodulated, amplified, etc., in a signal conditioning circuit 12 and then fed via the channel switch 10 to a data signal sink 14, shown in general form here, having loudspeaker 16 connected thereto for example. The details of the device generally described here are known from the prior art and shall not be explained more closely.

On page 6, replace the paragraph beginning on line 31 with the following:

Additional part 1 shown on the bottom right in FIG. 1 is used for fast and continuous change-over of the particular "active" channel in channel switch 10. For this purpose, the channel switch 10 has connected thereto a channel selecting device 20 which is in turn driven by a channel hopping sequence program part 22 which contains a processor and a memory.

On page 7, replace the paragraph starting on line 4 as follows:

Time synchronization of a transmitting and a receiving device is effected with the aid of a clock device containing a time signal generator 24 and a clock 26. For this purpose, the time signal generator 24 receives a public time signal (the signal DCF 77 in Germany) though an antenna 25 and forms therefrom a second clock signal *s* and a minute clock signal *m*. The second clock signal *s* is fed to the clock 26 which generates in synchronism with the second clock signal *s* a fast pulse train, in the present case a pulse train with a frequency of one megahertz.

On page 7, replace the paragraph starting on line 11 as follows:

In the program part 22 for the channel hopping sequence a plurality of channel hopping sequences are stored.

On page 7, replace the paragraph starting on line 15 as follows:

When one user of the CB radio system wants to speak to another user with a transceiver of the kind shown in FIG. 1, he enters the receiver's identification number via a keyboard not shown. A corresponding code goes via the signal source 4 and the channel switch 10 into the signal conditioning circuit 6. The receiver called, which has the same components as the radio data transmission device 2 shown in FIG. 1, is in the standby state, thus receiving through its own antenna 8 the calling signal which is processed via the signal conditioning circuit 12 and channel switch 10 so that the call is then recognized.

On page 7, replace the paragraph starting on line 22 as follows:

The calling operation causes the channel hopping sequence belonging to the selected identification number to be adjusted in the transmitting device. In order to be able to communicate with the called receiver the transmitter must synchronize itself with the receiver. This is done with the aid of the time signal generator 24 which provides synchronous minute and second signals in all devices. For example, a certain data word is fed to the channel selection circuit 20 in the transmitting device by the program part 22, the data word being a channel hopping sequence specific to the identification number. Furthermore, the channel where synchronization is to begin is fixed in advance. At the following minute clock signal the channel where synchronization is to begin is held for a short time period by corresponding circuit-technology measures in the devices. After this time period has expired, the transmitter and the receiver work with a synchronous, identical channel hopping sequence. The clock 26 can feed a high-frequency signal (one megahertz) to the channel selection circuit 20 which then

feeds a corresponding control signal to the channel switch 10. The data are then changed over between the different channels in identical fashion both in the transmitter and in the receiver. Since only the transmitter and receiver work in synchronism with this specific channel hopping sequence, all other devices are excluded from communication.

On page 8, replace the paragraph starting on line 7 as follows:

The channel selection circuit 20 may be for example a register in which a certain pattern identifying the selected channel is stored at each clock. The content of the shift register may be deposited in a memory (EPROM). However, it is also possible to determine the channel hopping sequence on the basis of an algorithm, said algorithm processing the identification number into the channel hopping sequence.

On page 8, replace the paragraph starting on line 12 as follows:

FIGS. 2a and 2b shows the simplified case of a system with five channels 1, 2 ... 5 and a clock cycle comprising four clocks. FIG. 2a shows cyclical hopping of channels 1, 3, 5, 2, 1, 3, 5 ... of device 1 called by device 2, i.e., device 1 is the receiver and device 2 is the transmitter. The call by the transmitter 2 causes the channel sequence of the transmitter 2 to be replaced at that moment by that of the receiver 1 and a "start signal" for synchronization to be adjusted, channel "3" here. When these adjustments are finished, the transmitter 2 waits for the next agreed time clock, e.g. the second clock of the public time signal. When said second clock, t2, comes, the channel hopping sequence begins in the transmitter 2.

On page 8, replace the paragraph starting on line 20 as follows:

The transmitter 2 and receiver 1 are now working fully identically, in terms of channel selection. Accordingly, the two devices can also open a "window" for other data devices. For this purpose a defined channel is e.g. held for several seconds, e.g. in synchronism with the minute clock. In this time other users can dial in. At the end of the "window" all user devices begin to work with identical synchronous channel hopping sequences. Opening the "window", i.e. holding a certain channel in a time interval lasting e.g. a few seconds, can be effected with a special button.

A6 cont.

On page 8, replace the paragraph starting on line 27 as follows:

All circuit parts described above and shown in the drawing can be produced with commercial components in the way known to one skilled in the art of data transmission in communication devices. The additional part 1 in FIG. 1 may also be integrated in a communication device.

On page 9, replace the paragraph beginning on line 1 with the following:

A7

In accordance with FIG. 3, a transmitter *A* wants to communicate with a receiver *B*. For this purpose, the transmitter *A* sends the identification number of desired target device *B* (step *SA*1). The step of calling the receiver *B* automatically causes the channel hopping sequence of the receiver *B* stored in the device to be adjusted in the transmitter *A* (step

SA2).

On page 9, replace the paragraph beginning on line 5 with the following:

During this time, the receiver *B* is in the standby state, i.e., ready to receive. That is, the receiver cyclically runs through the unique channel hopping sequence specific to receiver *B* (step *SB*1). When the call from the transmitter *A* is received on the receiver *B* (step *SB2),* the receiver *B* sends a confirmation signal to the transmitter *A*.

A1 cont.

On page 9, replace the paragraph starting on line 9 with the following:

The transmitter A waits for said confirmation from device *B* (waiting loop *SA3).* After receipt of confirmation the channel hopping sequence is halted on a predetermined channel. Then the synchronous clock is awaited in accordance with step *SA5.* The synchronous clock occurs in the transmitter *A* at the same time as in the receiver *B,* namely on the starting channel of the channel hopping sequence cycle.

On page 9, replace the paragraph starting on line 14 with the following:

In accordance with step *SA6* the channel hopping cycle is started after receipt of the synchronous clock signal. Both in the transmitter *A* and in the receiver *B* the same channel hopping sequence is now cyclically run through, in exact synchronism, so that data exchange between the two devices is possible (step *SA6* and step *SB3).*

On page 9, replace the paragraph starting on line 18 with the following:

In a slightly less favorable embodiment step *SA3* and also the confirmation in step *SB2* may be omitted.

On page 9, replace the paragraph starting on line 20 with the following:

FIG. 4 shows a functional block diagram of the channel selecting device 20 shown in FIG. 1. The program part 22 for the channel hopping sequence shown in FIG. 1 sends an item of data representative of the current channel hopping sequence, in the present example (see FIG. 2) the cyclical sequence 3, *5*, 2, 1, 3, *5*, ..., which is loaded into a register. The register cyclically feeds the individual positions to the channel switch 10. Synchronization between a transmitter and a receiver is effected here with the channel "3" at the highest position of the register. Clock 26 in FIG. 1 provides the clock signal (CLK) to the register so that the channels are hopped with the corresponding clock frequency.

On page 9, replace the paragraph starting at line 31 with the following:

FIG.5 shows a somewhat more detailed embodiment of the additional part 1 from FIG. 1. Over antenna 25 the public dial tone signal is received and fed to a minute and second evaluation means 40 which generates a minute signal and a second signal. The second signal and the minute signal are used for continuous synchronization of internal clock 42, on the one hand, and for synchronizing a transmitter with a receiver, on the other hand. Since the public time signal is received in synchronism simultaneously in each country, the present

invention utilizes this property of the time signal to synchronize transmitters and receivers at any distance from each other. The effort this requires is extremely low.

On page 10, replace the paragraph starting at line 8, with the following:

In FIG. 5, the clock 42 drives a program counter 45, a dwell counter 46 and a channel counter 48. The program counter 45 advances the channel counter 48. The dwell counter 46 temporarily halts the program counter 45 and the channel counter 48 so that data exchange in the course of connection setup is possible during this halting time period. After the dwell counter 46 has performed a number of counting steps corresponding to a certain time period it is reset to zero and the program counter 45 and channel counter 48 are simultaneously started.

On page 10, replace the paragraph starting on line 15 with the following:

Connected to the channel counter 48 is a drive interface 49 which connects to the channel switch 10 and has the function of galvanically decoupling the additional part 1 from the connected transceiver 2.

In the Abstract:

Amend the abstract as follows:

Transceivers which communicate with each other with a unique and synchronous channel hopping sequence are used to protect transmitted data signals. Each transceiver contains

along with the customary circuits for signal processing a program part for a channel hopping sequence a clock device which is synchronized by a public radio time signal, a channel selection circuit and a channel switch. The receiving and transmitting devices are both adjusted to a specific channel hopping sequence in accordance with the identification number of the receiving device so as to exclude the participation of further devices in communication. Channel hopping is effected at a relatively high frequency of approximately one megahertz so that there is no possibility of the connection being interrupted by a stronger transmitter, as is possible with conventional CB radio systems for example. Transmitter and receiver can be synchronized quickly and simply on the basis of the public time signal.

In the Claims:

Cancel claims 1-7 of the amended sheets of claims, without prejudice.

Please add new claims 8-15 as follows:

8. A system for transferring data signals over a communication link having a plurality of channels comprises a plurality of transceivers, wherein each of said plural transceivers comprises:

a transmitting section for conditioning input data for transmission of said input data over the communication link having the plurality of channels;

a receiving section for receiving signals from one of the plural channels of the communication link and processing the signals into output data;